

Claims:

1 1. A wireless communication system comprising:
2 a plurality of wireless devices, each wireless device including a radio, that
3 together participate in a first wireless roaming network when within range of one another;
4 and
5 at least two of the plurality of wireless devices, when moved out of range of the
6 other of the plurality of wireless devices, automatically attempting to establish a second
7 wireless roaming network to support communication between the at least two of the
8 plurality of wireless devices.

1 2. The wireless communication system of claim 1 wherein at least one of the
2 other of the plurality of wireless devices attempts to maintain operation of the first
3 wireless roaming network.

1 3. The wireless communication system of claim 1 wherein at least one of the
2 other of the plurality of wireless devices attempts to identify whether any of the plurality
3 of wireless devices are not participating on the first wireless roaming network.

1 4. The wireless communication system of claim 3 wherein the at least one of
2 the other of the plurality of wireless devices attempts to rescue any of the plurality of
3 wireless devices that are not participating on the first wireless roaming network.

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1 5. The wireless communication system of claim 4 wherein the radios of the
2 plurality of wireless devices utilize frequency hopping transmission sequences, and the
3 attempt to rescue involves visiting at least one frequency of the frequency hopping
4 transmission sequences more often than the other frequencies of the frequency hopping
5 transmission sequences.

1 6. The wireless communication system of claim 1 wherein any of the
2 plurality of wireless devices that determine that they no longer participate on the first
3 wireless roaming network attempt to reconnect to the first wireless local area network.

1 7. The wireless communication system of claim 6 wherein the radios of the
2 plurality of wireless devices utilize frequency hopping transmission sequences, and the
3 attempt to reconnect involves visiting at least one frequency of the frequency hopping
4 transmission sequences at least more often than the other frequencies of the frequency
5 hopping transmission sequences.

1 8. The wireless communication system of claim 1 wherein more than one of
2 the plurality of wireless devices share beaconing responsibilities.

1 9. The wireless communication system of claim 8 wherein the beaconing
2 responsibilities are not equally shared amongst the more than one of the plurality of
3 wireless devices.

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1 10. The wireless communication system of claim 8 wherein the beaconing
2 responsibilities are managed in a round robin sequence.

1 11. The wireless communication system of claim 1 further comprising a
2 higher power wireless link independent from the first and second wireless roaming
3 networks, and at least one of the plurality of wireless devices communicates with the
4 higher power wireless link.

1 12. The wireless communication system of claim 11 further comprising a
2 wired network coupled to the first wireless roaming network via the at least one of the
3 plurality of wireless devices using the higher power wireless link.

1 13. The wireless communication system of claim 1 wherein the at least two of
2 the plurality of wireless devices rejoin the first wireless roaming network when moving
3 within range of the others of the plurality of wireless devices.

1 14. The wireless communication system of claim 1 wherein one of the
2 plurality of wireless devices comprises a portable terminal with a removable battery, and
3 the wireless communication system supporting continued operation of the first wireless
4 roaming network during replacement of the removable battery.

1 15. The wireless communication system of claim 1 wherein the plurality of
2 wireless devices initiate operation of the first wireless roaming network through reduced
3 power transmissions.

1 16. The wireless communication system of claim 15 wherein the plurality of
2 wireless devices are placed in close proximity of one another to initiate operation of the
3 first wireless roaming network.

1 17. The wireless communication system of claim 1 wherein the radios of the
2 plurality of wireless devices each support a smart and a dumb interface.

1 18. A wireless communication system using frequency hopping protocol that
2 uses a plurality of frequencies, the wireless communication system comprising:

3 a plurality of wireless devices, each wireless device including a wireless
4 transceiver that uses each of the plurality of frequencies to communicate according to the
5 frequency hopping protocol;

6 at least one of the plurality of wireless devices attempting to establish
7 communication with one other of the plurality of wireless devices using a first subset of
8 the plurality of frequencies;

9 the one other of the plurality of wireless devices using a second subset of the
10 plurality of frequencies to facilitate the establishment of communication with the first of
11 the plurality of wireless devices; and

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12 each of the plurality of wireless devices that have established communication
13 utilizing each of the plurality of frequencies to maintain communication.

1 19. The wireless communication system of claim 18, wherein the attempting
2 to establish communication by the at least one of the plurality of wireless devices
3 comprises a search and rescue operation.

1 20. The wireless communication system of claim 18, the first and second
2 subsets of the plurality of frequencies each including at least one common frequency.

1 21. The wireless communication system of claim 18, further comprising:
2 the at least one of the plurality of wireless devices attempting to establish
3 communication with the one other of the plurality of wireless devices using a third subset
4 of the plurality of frequencies if the attempting to establish communication using the first
5 subset of the plurality of frequencies proves unsuccessful.

1 22. The wireless communication system of claim 18, further comprising:
2 the one other of the plurality of wireless devices using a third subset of the
3 plurality of frequencies to facilitate the establishment of communication with the at least
4 one of the plurality of wireless devices if communication is not established using the
5 second subset of the plurality of frequencies.

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1 23. A wireless communication system using frequency hopping protocol that
2 uses a plurality of frequencies, the wireless communication system comprising:
3 a plurality of wireless devices, each wireless device including a wireless
4 transceiver that uses each of the plurality of frequencies to communicate according to the
5 frequency hopping protocol;
6 a first of the plurality of wireless devices attempting to establish communication
7 with a second of the plurality of wireless devices by sequentially transmitting on a first
8 subset of the plurality of frequencies;
9 the second of the plurality of wireless devices attempting to receive on a second
10 subset of the plurality of frequencies to facilitate the establishment of communication
11 with the first of the plurality of wireless devices; and
12 the first and second subsets of the plurality of frequencies each including at least
13 one common frequency.

1 24. The wireless communication system of claim 23, wherein the attempting
2 to establish communication by the first of the plurality of wireless devices comprises a
3 search and rescue operation.

1 25. The wireless communication system of claim 23, further comprising:
2 the first of the plurality of wireless devices attempting to establish communication
3 with the second of the plurality of wireless devices using a third subset of the plurality of

4 frequencies if the attempting to establish communication using the first subset of the
5 plurality of frequencies proves unsuccessful.

1 26. The wireless communication system of claim 23, further comprising:
2 the second of the plurality of wireless devices using a third subset of the plurality
3 of frequencies to facilitate the establishment of communication with the first of the
4 plurality of wireless devices if communication is not established using the second subset
5 of the plurality of frequencies.

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